

Amendments to the Drawings:

The attached sheets of drawings include changes as requested by the Examiner.

Attachments: Replacements Sheets

REMARKS/ARGUMENTS

Status of Claims

Claims 1-35 are pending wherein claims 1, 10, 19 and 27 are independent. Claims 1, 10, 19 and 27 are amended herein, and claims 2-9, 11-18, 20-26 and 28-35 are unchanged. As demonstrated below, all of the claims contain subject matter which is not disclosed, taught or made obvious by the cited art.

Specification

In view of amendments made herein, Applicants respectfully request withdrawal of the objections to the specification.

Drawings

In view of amendments made herein, Applicants respectfully request withdrawal of the objections to the drawings.

Claim Objection

The Examiner objected to the language in limitation (f) of claim 19 and suggested that the language be changed to improve clarity of the limitation. Accordingly, The Applicants amend claim 19. Applicants respectfully request withdrawal of the objections to the claims for the informality to claim 19.

Allowable Subject Matter

The Examiner is thanked for indicating that objected-to claims 2, 4-7, 9, 11, 13-16, 18, 20, 22-25, 28, 30-33 and 35 would be allowable if rewritten in independent form including all of the limitations of the base claims. However, in view of the remarks presented below, the Applicants believe that all claims are allowable.

No Disposition of Claim 27

The Examiner has not provided a disposition for independent claim 27. Accordingly, Applicants assert that claim 27 is allowable. If in the next office action, the Examiner does not

allow claim 27, the Applicants respectfully request that the Examiner make the action non-final, so that the Applicants are afforded an opportunity to respond to the Examiner's disposition. However, the Applicants believe that claim 27 is allowable.

Rejection of claims 1, 3, 10, 12, 21 and 29 under 35 U.S.C. §103(a) as obvious over Whitecar (US 6055318) in view of Gothé et al (US 6049577) and further in view of Ferguson (US 6907143), Liu (Modified Autocorrelation Method Compared With Maximum Entropy Method and RF Cross Correlation as Mean Frequency Estimator for Doppler Ultrasound, 1991 Ultrasonics Forum, pages 1285-1290) and Massie et al (US 5943427)

The Examiner has rejected claims 1, 3, 10, 12, 21 and 29 under 35 U.S.C. §103(a) as being obvious over Whitecar, Gothé et al, Ferguson, Liu and Massie. The Applicants respectfully traverse this rejection.

Obviousness

Under MPEP § 2143, to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicants' disclosure. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See MPEP § 2143 (III). A statement that modifications of the prior art to meet the claimed invention would have been well known to one of ordinary skill in the art at the time of the claimed invention because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. See MPEP § 2143 (IV).

The Examiner's rejection fails to provide motivation or suggestion in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. The Examiner states that the references are in the same field of endeavor, however, the Examiner fails to suggest the desirability of the combination of the references. The Examiner does make statements stating that it would have

been obvious to combine the system of Whitecar with Ferguson and combine the system of Whitecar with Massie to allow some benefit. However, the Examiner fails to show, in the prior art, the suggestion of the desirability of such combinations. The Examiner asserts that the desirability of the combination is well known. Applicants assert that one of ordinary skill in the art at the time of the invention would not have thought that such combinations would have been obvious.

Regarding the combination of references, Whitecar in view of Gothe and Liu, the rationale supporting an obviousness rejection may be based on common knowledge in the art or “well-known” prior art. The Examiner may take *official notice* of facts outside of the record which are capable of instant and unquestionable demonstration of being “well-known” in the art. MPEP § 2144.03. However, “[t]he facts so noticed serve to ‘fill the gaps’ which might exist in the evidentiary showing and should not comprise the principle evidence upon which a rejection is based.” MPEP § 2144.03.

Accordingly, the Applicants traverse the rejections of claims 1, 3, 10, 12, 21 and 29, based on official notice and request references for disclosures for the teachings that the Examiner regards as well known in the art.

In view of these remarks, if the Examiner does not intend to withdraw the rejections of the claims, Applicants request that the Examiner provide evidence in the next office action regarding the requirements of the claims being known in the art or explain why no evidence is required. *See* MPEP § 2144.03.

If the Examiner declines to provide evidence, and if the Examiner wishes to maintain a rejection based upon personal knowledge regarding the requirements of the claims being known in the art, Applicants request that such knowledge be stated as specifically as possible in an affidavit, in accordance with MPEP § 2144.03.

Regarding independent claim 1 and 10, Applicants’ claimed method and apparatus for determining first and second filter coefficient in a noise elimination filter comprise a unique combination of features. Applicants respectfully submit that no combination of Whitecar, Gothe, Ferguson, Liu and Massie, teaches, discloses, suggests or renders obvious, the unique combination of features as claimed in Applicants’ method and apparatus. That is, contrary to the Examiner’s

analysis, Whitecar in view of Gothe, Ferguson, Liu and Massie does not teach, disclose, suggest or render obvious the instantly claimed features including *detecting a noise level upon receiving a difference between the predicted channel response signal and a previously predicted channel response signal, and detecting channel speed prediction information upon receiving an auto-correlation function of the predicted channel response signal; and determining first and second filter coefficients mapping-processed by the detected noise level and the detected channel speed prediction information in a method for determining first and second filter coefficients in a noise elimination filter.* For example, Whitecar does not teach *determining first and second filter coefficients mapping-processed by the detected noise level.* Gothe does not teach *predicted channel response and detecting a noise level upon receiving a difference between the predicted channel response signal and a previously predicted channel response signal.* Liu does not teach *detecting channel speed prediction information upon receiving an auto-correlation function of the predicted channel response signal.*

Regarding rejection of dependent claims 3, 12 and 29, for the reasons stated above, the Applicants assert that Whitecar in view of Gothe, Ferguson, Liu and Massie does not teach, disclose, suggest or render obvious the instantly claimed features by the Applicants in independent claims 1, 10 and 27, from which claims 3, 12 and 29 depend. For example, Gothe does not disclose

detecting a noise level calculated by the equation
$$\alpha = \frac{1}{M_{pilot}} \sum_{n=1}^{M_{pilot}} \left| \tilde{c}(n) - \tilde{c}(n-1) \right|.$$

Accordingly, the Applicants respectfully request the withdrawal of the rejection of dependent claims 3, 12 and 29 for the same reasons as their base independent claims.

Regarding rejection of dependent claim 21, the Examiner points to the rejection as similarly analyzed as claim 3 using Whitecar in view of Gothe, Ferguson, Liu and Massie. Applicants respectfully find this rejection to be in error because claim 21 depends on independent claim 19, which is rejected using different references than the base claim for dependent claim 3. Namely, claim 19 uses the Whitecar, Gothe et al, Liu, Massie, Conner and Ito references. In any case, the Applicants respectfully assert that no combination of Whitecar,

Gothé, Ferguson, Liu, Massie, Connor and Ito, however applied, teaches, discloses, suggests or renders obvious the instantly claimed features of claim 21, at least for the reasons stated in the response to independent base claim 19 (see below), from which claim 21 depends. For example, Gothé does not disclose detecting a noise level calculated by the equation

$$\alpha = \frac{1}{M_{pilot}} \sum_{n=1}^{M_{pilot}} \left| \tilde{c}(n) - \tilde{c}(n-1) \right|.$$

Accordingly, the Applicants respectfully request the withdrawal of the rejection of dependent claim 21.

For the reasons noted above, the combination of references do not teach, disclose, suggest or render obvious the instantly claimed features of independent claims 1 and 10 and dependent claims 3, 12, 21 and 29. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) for these claims.

Rejection of claims 8, 17, 26 and 34 under 35 U.S.C. §103(a) as obvious over Whitecar (US 6055318) in view of Gothé et al (US 6049577) and further in view of Ferguson (US 6907143), Liu (Modified Autocorrelation Method Compared With Maximum Entropy Method and RF Cross Correlation as Mean Frequency Estimator for Doppler Ultrasound, 1991 Ultrasonics Forum, pages 1285-1290), Massie et al (US 5943427) and Gandhi (US 6263354)

The Examiner has rejected claims 8, 17, 26 and 34 under 35 U.S.C. §103(a) as being obvious over Whitecar, Gothé et al, Ferguson, Liu, Massie and Gandhi.

Regarding dependent claims 8, 17 and 34, for the reasons stated above, the Applicants assert that Whitecar in view of Gothé, Ferguson, Liu and Massie does not teach, disclose, suggest or render obvious the instantly claimed features by the Applicants in independent claims 1, 10 and 27, from which claims 8, 17 and 34 depend. Also, Gandhi does not supply at least the Examiner's noted deficiencies to Whitecar. Therefore, dependent claims 8, 17 and 34 would not have been obvious from any reasonable combination of Whitecar, Gothé, Ferguson, Liu, Massie and Gandhi. Accordingly, the Applicants respectfully request the withdrawal of the rejection of dependent claims 8, 17 and 34 for the same reasons as their base independent claims.

Regarding rejection of dependent claim 26, the Examiner points to the rejection as similarly analyzed as claim 8 using Whitecar in view of Gothé, Ferguson, Liu, Massie and

Gandhi. Applicants respectfully find this rejection to be in error because claim 26 depends on independent claim 19, which is rejected using different references than the base claim for dependent claim 8. Namely, claim 19 uses the Whitecar, Gothe et al, Liu, Massie, Conner and Ito references. In any case, the Applicants respectfully assert that no combination of Whitecar, Gothe, Ferguson, Liu, Massie, Connor, Ito and Gandhi, however applied, teaches, discloses, suggests or renders obvious the instantly claimed features of claim 26, at least for the reasons stated in the response to independent base claim 19 (see below), from which claim 26 depends. Accordingly, the Applicants respectfully request the withdrawal of the rejection of dependent claim 26.

Rejection of claim 19 under 35 U.S.C. §103(a) as obvious over Whitecar (US 6055318) in view of Gothé et al (US 6049577) and further in view of Liu (Modified Autocorrelation Method Compared With Maximum Entropy Method and RF Cross Correlation as Mean Frequency Estimator for Doppler Ultrasound, 1991 Ultrasonics Forum, pages 1285-1290) Massie et al (US 5943427), Conner et al (US 4450445) and Ito (US 20020009128)

The Examiner has rejected claim 19 under 35 U.S.C. §103(a) as being obvious over Whitecar, Gothe et al, Liu, Massie, Conner and Ito, however, the Examiner does not specifically point out how the Massie reference is relevant to claim 19. The Applicants request withdrawal of the Massie reference for claim 19.

Obviousness

Under MPEP § 2143, to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicants' disclosure. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See MPEP § 2143 (III). A statement that modifications of the prior art to meet the claimed invention would have been well known to one of ordinary skill in the art at the time of the claimed invention because the references relied upon teach that all aspects of the claimed invention were individually

known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. See MPEP § 2143 (IV).

The Examiner's rejection fails to provide motivation or suggestion in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. The Examiner states that the references are in the same field of endeavor, however, the Examiner fails to suggest the desirability of the combination of the references. The Examiner does make statements stating that it would have been obvious to combine the system of Whitecar with Gothe, Ito and Liu (individually) to allow some benefit. However, the Examiner fails to show, in the prior art, the suggestion of the desirability of such combinations. The Examiner asserts that the desirability of the combination is well known. Applicants assert that one of ordinary skill in the art at the time of the invention would not have thought that such combinations would have been obvious.

Regarding the combination of references, Whitecar in view of Gothe and Liu, the rationale supporting an obviousness rejection may be based on common knowledge in the art or "well-known" prior art. The Examiner may take *official notice* of facts outside of the record which are capable of instant and unquestionable demonstration of being "well-known" in the art. MPEP § 2144.03. However, "[t]he facts so noticed serve to 'fill the gaps' which might exist in the evidentiary showing and should not comprise the principle evidence upon which a rejection is based." MPEP § 2144.03.

Accordingly, the Applicants traverse the rejections of claims 19, based on official notice and request references for disclosures for the teachings that the Examiner declares as well known in the art.

In view of these remarks, if the Examiner does not intend to withdraw the rejections of the claims, Applicants request that the Examiner provide evidence in the next Office action regarding the requirements of the claims being known in the art or explain why no evidence is required. See MPEP § 2144.03.

If the Examiner declines to provide evidence, and if the Examiner wishes to maintain a rejection based upon personal knowledge regarding the requirements of the claims being known in the art, Applicants request that such knowledge be stated as specifically as possible in an affidavit, in accordance with MPEP § 2144.03.

Regarding independent claim 19, Applicants' claimed method for receiving a common pilot channel signal at an adaptive channel estimator of a mobile communication system comprises a unique combination of features. Applicants respectfully submit that no combination of Whitecar, Gothe, Liu, Massie, Conner et al and Ito, teaches, discloses, suggests or renders obvious, the unique combination of features as claimed in Applicants' method. That is, contrary to the Examiner's analysis, Whitecar in view of Gothe, Liu, Massie, Conner et al and Ito does not teach, disclose, suggest or render obvious the instantly claimed features including *multiplying a complex conjugate of a corresponding pilot symbol by the common pilot channel signal, and outputting a predicted fading channel response signal; detecting a noise level contained in the predicted fading channel response signal; detecting a channel speed of the common pilot channel signal on the basis of the predicted fading channel response; comparing the detected noise level with at least one first reference value; comparing the detected channel speed with at least one second reference value; determining first and second filter coefficients mapped to an area corresponding to the comparing result to be filter coefficients for noise elimination, said first and second filter coefficients being mapping-processed for every area assigned by the first and second reference values; and removing a noise component from the predicted fading channel response signal using the determined first filter coefficient and the determined second coefficient.* For example, Whitecar does not teach *determining first and second filter coefficients mapping-processed by the detected noise level.* Gothe does not teach *predicted channel response and detecting a noise level upon receiving a difference between the predicted channel response signal and a previously predicted channel response signal.* Liu does not teach *detecting channel speed prediction information upon receiving an auto-correlation function of the predicted channel response signal.*

For these reasons, the combination of references do not teach, disclose, suggest or render obvious the instantly claimed features of independent claim 19. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) for claim 19.

Conclusion

In view of the above, it is believed that the above-identified application is in condition for allowance, and notice to that effect is respectfully requested. Should the Examiner have any

questions, the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

A one month extension fee is believed to be due with this submission, and has been paid. If any other fees are required, the Patent Office is authorized to charge any fees required by this submission to Deposit Account No. 18-2220.

Respectfully submitted,

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